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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/273,948	03/22/1999	S. JAMALODDIN GOLESTANI	2	7777

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EXAMINER	
LY, ANH VU H	

ART UNIT	PAPER NUMBER
2662	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/273,948	Applicant(s) GOLESTANI, S. JAMALODDIN	
	Examiner Anh-Vu H Ly	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Objections

2. Claim 5 is objected to because of the following informalities: on line 2, presently read as "updated widow size". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 13, "the transmission" and "the receiver" lack antecedent basis.

Regarding claims 10, 14, and 16, "the receiver" lacks antecedent basis.

Regarding claim 24, "the transmission", "the congestion control value", and "the data packet" lack antecedent basis.

Further, claims 2 and 15 do not recite clearly the steps in the claimed method. The statement "that it locally generates and each consolidated congestion control value

that it receives from receivers" is confused. It is not clear whether "it locally generates" refers to a receiver positioned at an intermediate level or from a group of receivers.

Further, "each consolidated congestion control value that it receives from receivers" is confused. It is not clear whether a consolidated congestion control value is generated by an intermediate receiver from a combination of received congestion control values or a consolidated congestion control value is generated by an intermediate receiver for each of the received congestion control values positioned at a preceding level in the hierarchy.

Other claims are rejected upon the rejected parent claims.

Applicant is required to carefully review and clarify all the ambiguities in the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-3, 9, 13-15, 21 and 24, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Hurst et al. (US Patent 6,151,633). Hereinafter, referred to as Hurst.

With respect to claim 1, Hurst discloses (see Abstract and Figure 1) a multicast network, where sender 102 sends a plurality of multicast messages to plurality of heads and plurality of receivers (a source that transmits data messages to a plurality of receivers forming a multicast group of receivers).

Hurst discloses (col. 9, lines 60-64 and Figure 8) a computer system 800, which includes a processor 802 (accumulate statistics relating to the transmission) and storage 804, which includes head software 818 programmed to perform the functions of a head, receiver software 816, which programmed to perform the functions of a receiver (first apparatus that receives a transmitted data packet).

Hurst discloses (see Abstract) that the sender receives, from one of the plurality of the heads, a congestion status associated with a receiver of the head (second apparatus that generate a congestion control value and sends the value to the source). The sender adjusts the data rate in accordance with the congestion status (the source adjusts its transmission of data packets to the receivers as a function of a selected on or more of the plurality of congestion control values that it receives from respective ones of the receivers).

With respect to claim 2, as explained above in the rejection statements of claim 1, Hurst discloses all the claim limitations recited in claim 1 (parent claim).

Hurst discloses in Figure 1, a multilevel hierarchical reporting network (receivers forming the multicast group also form a multilevel hierarchical reporting network).

Hurst discloses (col. 2, lines 22-25 and Figure 1) that the heads are responsible for servicing requests from members of their groups so that the sender is not obligated to service requests from all of the receivers in the data distribution set-up (intermediated receivers).

Further, Hurst discloses (col. 9, lines 8-10 and Figure 1) that head 140, which manages a group of receivers underneath, would forward the congestion report, from receivers within its group, to head 124, which would then forward the congestion report to sender 102 (a receiver positioned at an intermediate level generates a consolidated congestion control value from congestion control values it receives from receivers positioned at a preceding level in hierarchy and forwards the consolidated congestion control value to the source via the next succeeding level in the reporting network).

With respect to claim 3, Hurst discloses in Figure 1, sender 102 is positioned at the top in a multicast network (the source is positioned at the highest level in the reporting hierarchy).

With respect to claim 9, Hurst discloses (col. 6, lines 15-32 and Figure 1) that when a sender 102, in response to receiving the congestion report event, reduces its

date rate for the entire multicast in order to accommodate a receiver (each of the receivers uses a rate based scheme to determine its respective congestion control value and the source applies the minimum of the congestion control values it receives from receivers as a rate of transmission of new data packets).

With respect to claim 13, Hurst discloses (see Abstract and Figure 1) a multicast network, where sender 102 sends a plurality of multicast messages to plurality of heads and plurality of receivers (a source that transmits data messages to a plurality of receivers forming a multicast group of receivers).

Hurst discloses (col. 9, lines 60-64 and Figure 8) a computer system 800, which includes a processor 802 (accumulate particular information relating to the transmission of data packets) and storage 804, which includes head software 818 programmed to perform the functions of a head, receiver software 816, which programmed to perform the functions of a receiver (first apparatus that receives a data packet from a source of data packets).

Hurst discloses (see Abstract) that the sender receives, from one of the plurality of the heads, a congestion status associated with a receiver of the head (second apparatus that generate a transmission control value as a function of the accumulated information and forwards the generated value as a feedback message to the source). The sender adjusts the data rate in accordance with the congestion status (the source may control its transmission of data messages to the receiver as a function of the

transmission control value received from the receiver and transmission control values received from other such receivers).

With respect to claim 14, Hurst discloses in Figure 1, receiver 154 is one of a plurality of receivers in a multicast network (the receiver is one of plurality of receivers that form a multicast group within the data network).

With respect to claim 15, Hurst discloses in Figure 1, a multilevel hierarchical reporting network (receivers form a multilevel hierarchical reporting network).

Hurst discloses (col. 2, lines 22-25 and Figure 1) that the heads are responsible for servicing requests from members of their groups so that the sender is not obligated to service requests from all of the receivers in the data distribution set-up (intermediated receivers).

Further, Hurst discloses (col. 9, lines 8-10 and Figure 1) that head 140, which manages a group of receivers underneath, would forward the congestion report, from receivers within its group, to head 124, which would then forward the congestion report to sender 102 (a receiver positioned at an intermediate level generates a consolidated congestion control value as a function of a combination of the congestion control value that it generates locally and each consolidated congestion control value that it receives from receivers positioned at a preceding level in hierarchy and forwards the consolidated congestion control value to the source via the next succeeding level in the reporting network).

With respect to claim 21, Hurst discloses (col. 6, lines 15-32 and Figure 1) that when a sender 102, in response to receiving the congestion report event, reduces its date rate for the entire multicast in order to accommodate a receiver (a receiver uses a rate based scheme to determine the congestion control value and the source applies the minimum of the congestion control values it receives from receivers as a rate of transmission of new data packets).

With respect to claim 24, Hurst discloses (col. 6, lines 39-47 and Figure 4) steps that performed by a data processing system programmed to implement operations by a sender.

Further, Hurst discloses (col. 6, lines 48-60) that ACK WINDOW is a parameter that defines an interval in which a group of packets are sent. An ACK window is used for keeping track of packets, which are sent, making adjustments in the data rate. Further, a packet sequence number is used to keep track of each packet in the ACK WINDOW. The packet sequence number is useful for determining how many of the packets sent in the ACK WINDOW were received or lost (a sequence number generator).

Further, Hurst discloses in Figure 9, a processor 902, which is programmed to perform and implement the operations by a sender (a controller inserts next generated sequence number, regulates transmission of data packet based on a congestion control value, and transmits data packet in accordance with the congestion control value, in

which the congestion control value is selected from a group of congestion control values received from individual ones of the receivers).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4-8, 10-12, 16-20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurst in view of Packer et al. (US Patent 6,205,120). Hereinafter, referred to as Packer.

With respect to claim 4, as explained above in the rejection statements of claim 1, Hurst discloses all the claim limitations recited in claim 1 (parent claim).

Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Further, Hurst discloses (col. 6, lines 42-53) that the sender sets a value for ACK Window. ACK Window is a parameter that defines an interval in which a group of packets are sent.

Further, Hurst discloses (col. 6, lines 15-32 and Figure 1) that when a sender 102, in response to receiving the congestion report event, reduces its date rate for the entire multicast in order to accommodate a receiver.

Hurst does not disclose each of the receivers uses a window based scheme to determine a maximum expected sequence number as its respective congestion control value and wherein the source uses the minimum of the congestion control values it receives from the receivers as a maximum sequence number of a next packet that the source transmits to the receivers.

Packer discloses (col. 13, lines 29-40) that in a data packet communication environment, a receiver uses a sliding window method of rate control, to send a value for a window back to a sender as a receiver-advertised window.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of having a receiver sends a value for a window back to a sender in a window-based controlling scheme in Hurst's congestion control multicast network, as disclosed by Packer, to minimize queuing in each receiver. Further, as noted in Figure 1, a congestion status receives from each of the receivers within a sub-group, is forward to its head and its head forwards the congestion status to next higher level until the congestion status reaches the sender.

With respect to claim 5, as explained above in the rejection statements of claim 1, Hurst discloses all the claim limitations recited in claim 1 (parent claim).

Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Further, Hurst discloses (col. 6, lines 42-53) that the sender sets a value for ACK Window. ACK Window is a parameter that defines an interval in which a group of packets are sent. Further, Hurst discloses in Figure 8, a cache 817 for storing data packets.

Hurst does not disclose each of the receivers uses a window based scheme to determine, as a function of an updated window size, maximum sequence number of packets contiguously received, total length of received packets that are not contiguous and size of an associated reassembly buffer, a maximum expected sequence number as its respective congestion control value and wherein the source uses the minimum of the congestion control values it receives from the receivers as a maximum sequence number of a next packet that the source transmits to the receivers.

Packer discloses (col. 3, lines 38-41) that the problem of excessive buffering manifest itself whenever a user clicks on a URL in order to bring new data into her browser, while a current page is still transferring.

Further, Packer discloses (col. 13, lines 29-40) that in a data packet communication environment, a receiver uses a sliding window method of rate control, to send a value for a window back to a sender as a receiver-advertised window.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of having a receiver sends a value for a window back to a sender in a window-based controlling scheme in Hurst's congestion control multicast network based on the problem of excessive buffering, as disclosed by Packer, to minimize queuing in each receiver. Further, as noted in Figure

1, a congestion status receives from each of the receivers within a sub-group, is forward to its head and its head forwards the congestion status to next higher level until the congestion status reaches the sender.

With respect to claims 6 and 7, Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Hurst does not disclose a transmission window is determined as a function of loss and delay measured by a respective receiver and generates a respective congestion control value as function of a determined transmission window and sequence number of the last data packet received successfully in sequence with prior received data packets.

Packer discloses (col. 8, lines 26-67 and Figures 3A-B) that window sizes, which are greater than the optimal size computed in step 316 will be clamped to the value calculated in step 316. In a step 316, the optimal window size is computed using a conservative assumption about network transit latency.

Further, Packer discloses (col. 13, lines 29-40) that in a data packet communication environment, a receiver uses a sliding window method of rate control, to send a value for a window back to a sender as a receiver-advertised window.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of having a receiver sends a value for a window back to a sender in a window-based controlling scheme in Hurst's

congestion control multicast network based on the problem of loss and latency, as disclosed by Packer, to minimize queuing in each receiver. Further, as noted in Figure 1, a congestion status receives from each of the receivers within a sub-group, is forward to its head and its head forwards the congestion status to next higher level until the congestion status reaches the sender.

With respect to claim 8, Hurst discloses in Figure 8, a cache 817 for storing data packets. Further limitations are rejected as explained in claim 7.

With respect to claims 10 and 11, Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Hurst does not disclose the source inserts a time stamp in a data packet that it transmits to the multicast group of receivers and wherein the firs apparatus associates a received data packet with a current time stamp and first apparatus includes apparatus that determines a trip delay from the source to the receiver as a function of the difference of the inserted time stamp and a current time stamp. Further, Hurst does not disclose wherein each receiver determines a trip delay to the source.

Packet discloses (col. 7, lines 47-62) that the remote endpoint issues a request for connection in the form of a SYN packet. The SYN packet takes a finite but unknown transit time to arrive at the local TCP endpoint. The local TCP endpoint responds by

sending its own SYN packet. This SYN packet is of a known byte length and is issued at a known time, which becomes the reference time. After a brief latency, the remote TCP endpoint issues a standard ACK packet, whose length is likewise known and then also issues the first data packet. Time T is computed immediately at the time of arrival of data1 by examining the difference in arrival time of the received ACK packet and the data1 packet.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of calculating a time delay in Hurst's congestion control multicast network, as disclosed by Packet, to calculate a latency between a sender and a receiver or vice versa for congestion control purposes.

With respect to claim 12, Hurst discloses in Figure 1, a multicast network, where the congestion control value from a receiver within a sub-group is forwarded to next higher level until it reaches the sender 102 (each of the receivers forward its respective congestion control value to the source via the IP layer multicast network).

With respect to claim 16, as explained above in the rejection statements of claim 13, Hurst discloses all the claim limitations recited in claim 13 (parent claim).

Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Further, Hurst discloses (col. 6, lines 42-53) that the sender sets a value for ACK Window. ACK Window is a parameter that defines an interval in which a group of packets are sent.

Hurst discloses (col. 6, lines 15-32 and Figure 1) that when a sender 102, in response to receiving the congestion report event, reduces its date rate for the entire multicast in order to accommodate a receiver.

Hurst does not disclose a receiver uses a window based scheme to determine a maximum expected sequence number as its respective congestion control value and wherein the source uses the minimum of the congestion control values it receives from the receivers as a maximum sequence number of a next packet that the source transmits to the receivers.

Packer discloses (col. 13, lines 29-40) that in a data packet communication environment, a receiver uses a sliding window method of rate control, to send a value for a window back to a sender as a receiver-advertised window.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of having a receiver sends a value for a window back to a sender in a window-based controlling scheme in Hurst's congestion control multicast network, as disclosed by Packer, to minimize queuing in each receiver. Further, as noted in Figure 1, a congestion status receives from each of the receivers within a sub-group, is forward to its head and its head forwards the congestion status to next higher level until the congestion status reaches the sender.

With respect to claim 17, Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Hurst does not disclose a transmission window is determined as a function of loss and delay measured by a respective receiver and generates a respective congestion control value as function of a determined transmission window and sequence number of the last data packet received successfully in sequence with prior received data packets.

Packer discloses (col. 8, lines 26-67 and Figures 3A-B) that window sizes, which are greater than the optimal size computed in step 316 will be clamped to the value calculated in step 316. In a step 316, the optimal window size is computed using a conservative assumption about network transit latency.

Further, Packer discloses (col. 13, lines 29-40) that in a data packet communication environment, a receiver uses a sliding window method of rate control, to send a value for a window back to a sender as a receiver-advertised window.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of having a receiver sends a value for a window back to a sender in a window-based controlling scheme in Hurst's congestion control multicast network based on the problem of loss and latency, as disclosed by Packer, to minimize queuing in each receiver. Further, as noted in Figure 1, a congestion status receives from each of the receivers within a sub-group, is forward

to its head and its head forwards the congestion status to next higher level until the congestion status reaches the sender.

With respect to claim 18, Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Further, Hurst discloses (col. 6, lines 42-53) that the sender sets a value for ACK Window. ACK Window is a parameter that defines an interval in which a group of packets are sent. Further, Hurst discloses in Figure 8, a cache 817 for storing data packets.

Hurst does not disclose each of the receivers uses a window based scheme to determine, as a function of an updated window size, maximum sequence number of packets contiguously received, total length of received packets that are not contiguous and size of an associated reassembly buffer, a maximum expected sequence number as its respective congestion control value and wherein the source uses the minimum of the congestion control values it receives from the receivers as a maximum sequence number of a next packet that the source transmits to the receivers.

Packer discloses (col. 3, lines 38-41) that the problem of excessive buffering manifest itself whenever a user clicks on a URL in order to bring new data into her browser, while a current page is still transferring.

Further, Packer discloses (col. 13, lines 29-40) that in a data packet communication environment, a receiver uses a sliding window method of rate control, to send a value for a window back to a sender as a receiver-advertised window.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of having a receiver sends a value for a window back to a sender in a window-based controlling scheme in Hurst's congestion control multicast network based on the problem of excessive buffering, as disclosed by Packer, to minimize queuing in each receiver. Further, as noted in Figure 1, a congestion status receives from each of the receivers within a sub-group, is forward to its head and its head forwards the congestion status to next higher level until the congestion status reaches the sender.

With respect to claim 19, Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Hurst does not disclose a transmission window is determined as a function of loss and delay measured by a respective receiver and generates a respective congestion control value as function of a determined transmission window and sequence number of the last data packet received successfully in sequence with prior received data packets.

Packer discloses (col. 8, lines 26-67 and Figures 3A-B) that window sizes, which are greater than the optimal size computed in step 316 will be clamped to the value

calculated in step 316. In a step 316, the optimal window size is computed using a conservative assumption about network transit latency.

Further, Packer discloses (col. 13, lines 29-40) that in a data packet communication environment, a receiver uses a sliding window method of rate control, to send a value for a window back to a sender as a receiver-advertised window.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of having a receiver sends a value for a window back to a sender in a window-based controlling scheme in Hurst's congestion control multicast network based on the problem of loss and latency, as disclosed by Packer, to minimize queuing in each receiver. Further, as noted in Figure 1, a congestion status receives from each of the receivers within a sub-group, is forward to its head and its head forwards the congestion status to next higher level until the congestion status reaches the sender.

With respect to claim 20, Hurst discloses in Figure 8, a cache 817 for storing data packets. Further limitations are rejected as explained in claims 17 and 19.

With respect to claims 22 and 23, Hurst discloses (see Abstract) a data rate based scheme for controlling congestion in a multicast network where the receivers send a congestion status to the source and the transmission rate is adjusted by the source.

Hurst does not disclose the source inserts a time stamp in a data packet that it transmits to the multicast group of receivers and wherein the firs apparatus associates a received data packet with a current time stamp and first apparatus includes apparatus that determines a trip delay from the source to the receiver as a function of the difference of the inserted time stamp and a current time stamp. Further, Hurst does not disclose wherein each receiver determines a trip delay to the source.

Packet discloses (col. 7, lines 47-62) that the remote endpoint issues a request for connection in the form of a SYN packet. The SYN packet takes a finite but unknown transit time to arrive at the local TCP endpoint. The local TCP endpoint responds by sending its own SYN packet. This SYN packet is of a known byte length and is issued at a known time, which becomes the reference time. After a brief latency, the remote TCP endpoint issues a standard ACK packet, whose length is likewise known and then also issues the first data packet. Time T is computed immediately at the time of arrival of data1 by examining the difference in arrival time of the received ACK packet and the data1 packet.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a method of calculating a time delay in Hurst's congestion control multicast network, as disclosed by Packet, to calculate a latency between a sender and a receiver or vice versa for congestion control purposes.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Golestani et al. (U.S. Patent No. 6,115,749) discloses a system and a method for using a window mechanism to control multicast data congestion.

Meizlik et al. (U.S. Patent No. 6,112,323) discloses a method and a computer program for efficiently and reliably sending small data messages from a sending system to a large number of receiving systems.

Jain et al. (U.S. Patent No. 5,633,859) discloses a method an apparatus for congestion management in computer networks using explicit rate indication.

Miller et al. (U.S. Patent No. 5,727,002) discloses methods for transmitting data.

Bustini et al. (U.S. Patent No. 5,313,454) discloses a congestion control for cell networks.

Miller et al. (U.S. Patent No. 6,151,696) discloses a data transmission method for quickly and reliably transfers data.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh-Vu H Ly whose telephone number is 703-306-5675. The examiner can normally be reached on Monday-Friday 7:00am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 703-305-4744. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

avl
March 28, 2002

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600